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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,353

07/14/2005

Alain Van Acker

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1727 KING STREET
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ALEXANDRIA, VA 22314

EXAMINER

BELL, BRUCE F

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

12/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,353	Applicant(s) VAN ACKER ET AL.	
	Examiner Bruce F. Bell	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15 and 16 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/14/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

Applicants are requested to place the title "BRIEF DESCRIPTION OF THE DRAWINGS", prior that section of the instant specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1-13, 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen (6158295) or Opyrchal (3957144) or Withrow et al (3704765) in combination with Sandvik (4816129) and King (4424130).

Nielsen disclose a linear actuator including a housing, a spindle rotatable in both directions, a threaded nut driving a piston rod and a motor capable of driving the spindle through a transmission. See abstract; Figure 1 and col. 2, line 66 – col. 3, line 7. The drive shaft of the electric motor is provided with a worm screw which drives a transmission wheel which rotates about the shaft. This transmission wheel is provided with a toothed wheel for engagement with the worm screw as well as a sun wheel which drives a planet gear. The planet gear additionally includes a plurality of planet wheels which are connected with a coupling part in a coupling unit and a ring wheel provided in the inner side of a pipe section which is rotatably arranged in the actuator housing. See col. 3, lines 8-19.

Opyrchal discloses a self contained mechanical actuator such as a jack screw which includes a housing in which a drive shaft assembly connects a power source to the input side of a speed reduction gear train, the output of which is associated with a load bearing means for manipulation of a load. See abstract. A mechanical actuator includes a housing having secured to one side thereof an electric drive motor and at the other side thereof a speed reduction gear unit from which extends a load bearing member, all of which is substantially similar to the mechanical actuator. See col. 3, lines 28-33. The drive shaft has attached thereto a selectively removable cylindrical coupling element located within the housing, the coupling being attached to a driven shaft axially

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aligned with the drive shaft at the input side of the speed reduction gear unit, with the drive shaft, coupling and driven shaft constituting the drive shaft assembly. See col. 3, lines 40-47. A reduction gear unit transmits the input rotation of the drive shaft to an output screw member at a significant reduction ration and the rotation of the output screw member is translated into linear movement by a translating tube through a traveling nut member interconnecting the output screw member and the translating tube. The lower or extending end of the translating tube has the load bearing member attached thereto for attachment to and manipulation of a load. The drive motor is a 1/10 horsepower, permanent magnet, direct current motor having a drive shaft speed of 2400 rpm and the reduction gear unit operates at a reduction ratio of 20:1 whereby the output screw rotates at 120 rpm. See col. 3, line 55 - col. 4, line 2.

Withrow et al disclose a jack mechanism located between a load and a traveling nut and protecting the motor and gearing against excessive torque development by allowing non-operating rotation of the nut when the applied torque exceeds the rotational restraint of the clutch. The clutch comprises a first component connected to the traveling nut through a tubular sleeve and having an axial bore through which a second component extends for non-rotatable attachment to a load. See abstract. A self locking transmission mechanism transmits rotation of the motor shaft to a gearing shaft while locking against attempted overriding, reversing or rundown rotation of the gearing shaft and attached components. The gearing shaft drives the gearing which includes a conical pinion formed on the end of the gearing shaft and drivingly meshing with a spiroid gear that is secured to a jack screw for driving rotation thereof. The jack screw is

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rotatably mounted in a bearing and is restrained in the housing against axial movement. An operating member in the form of a traveling nut is threadably mounted on the jack screw for axial movement therewith. The sleeve extends over and outwardly beyond the jack screw through an annular oil seal and wiper assembly mounted in the outer end of the tubular extension of the housing and through an annular guide bushing seated in the outer end of the tubular extension inwardly of the oil seal and wiper assembly. The sleeve is connected at its outer end to a load attaching member, in the form of a block having a cylindrical traverse bore in which is seated a tubular bushing for attachment of a load that is to be manipulated by the jack mechanism. The jack mechanism applies a torque through the shafts, gearing, and jack screw to transform rotational motion into axial motion of the operating member or nut when the nut is restrained against rotation and the nut is capable of non-operating rotation when the applied torque exceeds the restraint with the nut being connected to the load attaching member or block that is non-rotatably attachable to a load to restrain rotational movement of the nut and thereby produce manipulation of the load by axial movement of the nut. See col. 4, lines 25-64.

None of the prior art of Nielsen, Opyrchal or Withrow et al disclose the specific center to center distance between the axis of the drive wheel and worm gear or the reduction ratio between the worm screw and the drive wheel.

Sandvik disclose jack screws being used in conjunction with an anode superstructure for the raising and lowering by parallel movement, or tilted to either end in its longitudinal direction. See col. 1, lines 38-41. Different jack screw mechanism variations are shown for movement of the anodes in the anode superstructure. See col.

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1, lines 44-63 and col. 2, lines 58-68. When the jack device is used in connection with large electrolytic cell constructions, the anode bar may be provided with additional torsional devices at other places along the anode bar. Whether it is necessary to use more than two torsional devices is regard as being subject to a construction matter of judgment. See col. 3, lines 21-26.

King disclose an apparatus for driven and lifting having an annular hub having slot means through which vertical edges of a vertically extending rectangular torque plate are slidably affixed. Torque is transmitted from the gear member, through the hub slot means, to the torque plate and an assembly. See abstract. The King patent discloses a torque drive and lift system having a lift device comprised of a worm driven lift actuator driven by a motor through a gear reducer and a vertical jack screw lift shaft meshing with the actuator worm. The lift shaft is surround by a fixed lift tube which protects the shaft and other internal structures from spillage and weather. The shaft is attached by a universal clevis to accommodate any misalignments of the jack screw and torque plate. The shaft is pinned by shaft clevis pin. Depending from the clevis is a vertically extending flat rectangular torque plate which is attached to the clevis by a plate clevis pin. A plate stiffener in hexagon cross section is welded to the plate and extends over a vertical length of the plate. A gear hub fixed to the main drive gear of the device, extends horizontally and includes a depending or vertical extension containing a pair of extension slots which are normally at 180 degrees opposed to each other. Vertical side portions and edges of the torque plate are affixed through slots. The torque is transmitted from the main gear drive, through the hub and its slots to the torque plate.

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See col. 3, lines 5-27. The lift actuator may itself be actuated by a torque measuring device which feeds an electrical signal through a slip ring power supply assembly contained in the case on the upper end of the lift shaft. A worm and gear drive is illustrated in the patent wherein the worm drive contained in the worm drive case transmits motion to a circular drive gear. The worm drive includes a worm thrust bearing, a spring, and adjusting screw to vary spring tension and a stop member restriction motion of the worm laterally. See col. 3, lines 61-68.

The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the instant invention was made because even though none of the prior arts of Nielsen, Opyrchal, or Withrow et al teach the center to center distance or the reduction ratio as set forth in applicants instant claims, it appears through the prior art of record that this concept is known by virtue of the disclosures teaching the torsional forces and the amount of torque required to move the anodes into and out of the electrolytic cell through the use of jack screws attached to electric motors. In particular, the prior art of Opyrchal discloses that a reduction ratio is known to be used and the prior art of Sandvik sets forth that the construction of such torsional devices would be a matter of constructional judgment. It appears to the examiner, since all of the primary references have the same overall structure, that one of ordinary skill in the art would be able to optimize the axis and reduction ratios of the jack screw and its components to optimize the system to meet the demands of the superstructure to which it is attached based on the teachings of Nielsen or Opyrchal or Withrow et al since they all set forth the same components and set forth that the torsional forces and torque are

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key to the overall structure of the jack being used when being attached to a load.

Therefore, it appears that the claimed range as set forth in applicants instant claims are within the ability of the skilled artisan based on the prior art of record alone or in combination. The use of such jack in a superstructure or in an electrolytic cell is set forth in the prior art of record as shown by the disclosures above. Therefore, the prior art of Nielsen or Opyrchal or Withrow et al in combination with Sandvik and King render the applicants instant invention obvious for the reasons set forth above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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BFB
December 4, 2008

/Bruce F. Bell/
Primary Examiner, Art Unit 1795